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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,606	04/15/2004	Heikki Saha	014975-097	6390

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EXAMINER

TRUONG, THANH K

ART UNIT	PAPER NUMBER
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3721

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/824,606	SAHA, HEIKKI	
	Examiner	Art Unit	
	Thanh K. Truong	3721	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to applicant's amendment received on May 17, 2006.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 7-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "the operation" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Claim 7 recites the limitation "the operating state" in line 11. There is insufficient antecedent basis for this limitation in the claim.

Claim 7 recites the limitation "the basic setting" in line 11. There is insufficient antecedent basis for this limitation in the claim.

Similarly, claims 8, 9 and 10 have the same "insufficient antecedent basic" problems.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 4 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Muona (5,699,261).

Muona discloses an apparatus comprising:

a body (a rock drilling equipment and percussion machinery),

a percussion device arranged inside the body to generate impact pulses to a tool connectable to the rock breaking machine (column 2, lines 43-45),

one or more sensors 7 arranged to measure the operation of the apparatus (column 2, lines 9-12),

a control unit 1,

the sensor 7 are arranged to transmit measuring information to the control unit 1,

the control unit comprises a memory unit 3 for storing basic settings for the rock breaking machine and further a processing unit 5 that is , during operation, arranged to form parameters describing the operating state of the rock breaking machine on the basis of the basic settings and measuring information, and

the control unit 1 comprises an connection to a data communications link that enables communication between the control unit and at least one unit 8 external to the rock breaking machine for controlling the operation of the rock breaking machine so as to achieve the desired operating state of the rock breaking machine (column 3, lines 18-26).

6. Claims 4 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Tuunanen (5,934,387).

Tuunanen discloses an apparatus comprising:

a body 1,

a percussion device arranged inside the body to generate impact pulses to a tool connectable to the rock breaking machine (column 3, lines 1-6),

one or more sensors 6, 8, 9 10 arranged to measure the operation of the apparatus,

a control unit 7,

the sensors are arranged to transmit measuring information to the control unit (column 3, lines 20-24),

the control unit 7 comprises a memory unit for storing basic settings for the rock breaking machine and further a processing unit that is, during operation, arranged to form parameters describing the operating state of the rock breaking machine on the basis of the basic settings and measuring information (column 3, lines 47-66), and

the control unit 7 comprises an connection to a data communications link that enables communication between the control unit and at least one unit control unit external to the rock breaking machine (unit 4a, 4b or 4c, it is construed that units 4a-c are control unit that control the drilling) for controlling the operation of the rock breaking machine so as to achieve the desired operating state of the rock breaking machine.

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7. Claims 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Mashimo (4,343,367).

Mashimo discloses an apparatus comprising:

a body (figure 2 shows the carrier and the drilling apparatus),

a percussion device arranged inside the body to generate impact pulses to a tool connectable to the rock breaking machine (figure 1 - column 1, lines 9-13),

one or more sensors arranged to measure the operation of the rock breaking machine (figure 5, item 22 contains drilling point detector and transit point detector - sensors),

a control unit (18) arranged inside the body of the rock breaking machine,

the sensors are arranged to transmit measuring information to the control unit (column 6, lines 45-55 – figure 5),

the control unit (18) comprises a memory unit (15) for storing basic settings for the rock breaking machine and further a processing unit (18a) that is, during operation, arranged to form parameters describing the operating state of the rock breaking machine on the basis of the basic settings and measuring information, and

the control unit (18) comprises a connection to a data communications link that enables communication between the control unit and at least one control unit external to the rock breaking machine for controlling the operation of the rock breaking machine (figure 5 shows the communications link between the control unit (18) and the control unit (D, 25) external to the rock drilling machine) so as to achieve the desired operating state of the rock breaking machine (column 2, lines 35-45).

In light of the amendment to claims 1 and 4, claims 1 and 4 have been included in the new rejection as follows:

8. Claims 1, 4, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Mashimo (4,343,367).

Mashimo discloses an apparatus comprising:

a carrier (figure 2),

at least one feeding beam (figure 1),

a rock drilling apparatus movable in relation to the feeding beam and having a percussion device (column 1, lines 9-13),

one or more sensors arranged to the rock drilling apparatus to measure the operation of the rock drilling apparatus (figure 5, item 22 contains drilling point detector and transit point detector - sensors),

at least one first control unit (22) arranged on the carrier of the rock drilling rig to control the operation of the rock drilling apparatus on the basis of measuring information received from the sensors (control unit 22 is a drilling machine control and thus it is construed that it is located on the rock drilling rig),

a second control unit (18) arranged to the rock drilling apparatus,

a data communications link between the first control unit and the second control unit for transmitting information between the control units (figure 5 shows the communication links between control units),

the sensors monitoring the operation of the rock drilling apparatus are connected to transmit measuring information to the second control unit (figure 5),

the second control unit (18) comprises a memory unit (15) for storing basic settings for the rock drilling apparatus and a processing unit (18a, 18b) for calculating parameters describing the operating state of the rock drilling apparatus on the basis of said basic settings and measuring information, the second control unit is arranged to inform the first control unit about external resources that the second control unit needs to perform a required operation (column 6, lines 31-40), and

the first control unit (22) is arranged to adjust actuator affecting the operation of the rock drilling apparatus on the basis of the parameters received from the second control unit and instructions given to the first control unit (figure 5 shows the communication links between control unit (18) and (22)).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuunanen (5,934,387).

As discussed above in paragraph 6 of this office action, Tuunanen discloses the claimed invention, but it does not expressly disclose that the control unit is arranged inside the body of the rock breaking machine.

From figure 1, the examiner construes that the control unit (7) is arranged inside the body of the rock breaking machine (because it is not located outside of the apparatus – separate from the machine).

However, to response to the Applicant's argument that the control unit of tuunanen is not arranged inside the body of the machine, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have located the control unit (7) inside the body of the rock breaking machine to provide additional protection of the control unit from the environment, since rearranging parts of an invention involves only routine skill in the art.

Tuunanen further discloses at least some of the sensors are part of the control unit (the information from sensors is used to operate the machine, thus they are part of the control unit).

11. Claims 1, 2, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuunanen (5,934,387) in view of Dickel et al. (5,560,437).

Tuunanen discloses an apparatus comprising:

a carrier 1,

at least one feeding beam 3 (a-c),

a rock drilling apparatus 5 (a-c) movable in relation to the feeding beam and having a percussion device (column 3, lines 2-6),

one or more sensors 6, 8, 9, 10 arranged to the rock drilling apparatus to measure the operation of the rock drilling apparatus,

at least one first control unit 7 arranged on the carrier of the rock drilling rig to control the operation of the drilling apparatus on the basis of measuring information received from the sensors;

the first control unit is arranged to control the operation of the rock drilling apparatus on the basis of the parameters received from the second control unit 6, 8, 9 10 and instructions given to the first control unit.

Tuunanen discloses the claimed invention, but does not expressly disclose that the second control unit comprises a memory unit for storing basic settings for the drilling apparatus and a processing unit for calculating parameters describing the operating state of the rock drilling apparatus on the basis of the basic settings and measuring information.

Dickel discloses an apparatus (figures 1-6) comprising: a first control unit 42 including among others, computer 7, memory 45 and data processor 44; a second control unit, located on the device 1, comprises data memory 19, data processor 18 and data transfer device 20; and the second control unit storing basic settings for the drilling apparatus and calculating the parameters describing the operating state of the drilling apparatus on the basis of the basic settings and measuring information.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time applicant's invention was made, to have modified Tuunanen apparatus by incorporating the second control unit as taught by Dickel providing a wireless telecommunication link capability between the first control unit and second control unit.

The modified Tuunanen (by Dickel) further discloses the second control unit (18, 19, 20) is arranged inside the body 1 of the drilling apparatus (Dickel, figures 1 and 2); and at least some of the sensors 6, 8, 9, 10 (Tuunanen, figures 1) are integrated as part of the second control unit (the information from sensors is used to operate the machine, thus they are integrated as part of the control unit).

12. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuunanen (5,934,387) in view of Dickel et al. (5,560,437).

As discussed above in paragraph 11 of this office action, Tuunanen and Dickel disclose the claimed invention, but does not expressly disclose that the first data communications link between the first control unit and the second control unit is a CAN bus.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have modified Tuunanen by using the wireless to exchange data between the control units, because Applicant has not disclosed that using CAN bus to link information (data) between control units provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the wireless communication between control units because the wireless communication between control units as taught by Dickel provides a flexible and an effective means to link data between controls unit.

Therefore, it would have been an obvious matter of design choice to modify the Tuunanen by using the wireless link between the control units as taught by Dickel providing flexible capability of link between control units.

Response to Arguments

13. Applicant's arguments filed May 17, 2006 have been fully considered but they are not persuasive.

14. In response to the Applicant's arguments that Tuunanen does not disclose any second control unit arranged to the rock drilling apparatus, the examiner would like to point out that is why the examiner rejecting claim 1 under 103 rejection instead of 102 rejection, and Dickel reference is relied upon for the second control unit (see paragraph 9 of this office action).

15. In response to the Applicant's argument, regarding Dickel reference, that "Logging probe 1 merely collects loggings and is in no way a control unit", it is not found persuasive, because: Dickel teaches that the second control unit located on the device (1) has data memory (19), data processor (18) and data transfer device (20), and the second control unit storing basic settings for drilling apparatus and calculating the parameters describing the operating state of the drilling apparatus on the basis of the basic setting and measuring information as recited in the present claimed invention. Therefore it is construed that Dickel reference teaches second control unit as claimed.

16. In response to Applicant's argument that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon

hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. *In re McLaughlin*, 443 F.2d 1392; 170 USPQ 209 (CCPA 1971). In this case, Dickel et al. clearly teaches and suggests the use of a second control unit in a drilling operation which is old and well known in the art.

17. In response to the Applicant's arguments that "Muona does not teach at least the features of one or more sensors arranged to measure the operation of the rock breaking machine, as recited in claim 4, it is not found persuasive, because:

Muona clearly discloses at least one sensor (7) to measure the operation of the rock drilling apparatus as recited in claim 4.

"the arrangement further comprises a separate diagnosing unit capable of monitoring the functioning of set parameters so as to find out if the setting are appropriate. This allows any illogical or faulty operations to be detected." (column 2, lines 9-12).

The examiner construes that the diagnosing unit (7) is the "one sensor to measure the operation" as recited in claim 4.

The diagram (only figure of Muona) clearly discloses the control unit (1) that controlling the operation of the rock drilling apparatus (6) on the basis of measuring information received from the sensor (7) as recited in claim 4.

18. Applicant's arguments with respect to claim 4 (anticipated by Tuunanen) have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

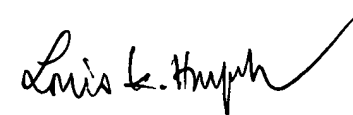
20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh K. Truong whose telephone number is 571-272-4472. The examiner can normally be reached on Mon-Thru 8:00AM - 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rinaldi Rada can be reached on 571-272-4467. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

tk
21. July 26, 2006.


LOUIS K. HUYNH
PRIMARY EXAMINER